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Kido

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[54] ORGANIC ELECTROLUMINESCENT DEVICE

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[52] **U.S. Cl.** 428/690; 428/917; 313/506

[56] References Cited

PUBLICATIONS

Appled Physics Letter (1994), vol. 64, No. 7, Feb. 14, 1994, Junji Kido et al. pp. 815–817.

Applied Physics Letter (1993), Part 2, Jul. 1, 1993, vol. 32, No. 7A, Junji Kido et al. pp. 917–920.

Applied Physics Letter (1993), vol. 63, No. 19, Nov. 8, 1993, Jinji Kido et al. pp. 2627–2629.

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[57] ABSTRACT

The first organic electroluminescent device is prepared by laminating the hole-transport luminescent layer 1 in which a dye is molecularly dispersed, and the electron-transport layer 2 containing a triazole derivative of the following formula (1). The second organic electroluminescent device has the layer containing the above triazole derivative. The third organic electroluminescent device wherein the layer containing the triazole derivative is interposed between the electron-transport layer and a hole-transport layer.

Every device is excellent in luminous efficiency, luminance and stability, realizing blue light emission, the multi-color displays and white light emission due to three primary colors.

$$H_3C$$
 H_3C
 R^5
 R^4
 R^2
 R^2

wherein the numeral references have the same meanings stated in specification.

8 Claims, 17 Drawing Sheets



